RF Programmable Signal Processor System for Fuze Programming

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MSI's Signal Processor ICs for Fuzing Applications

HDL304 for the 734A1 Fuze

HDL400 for fuzing 40mm

HDL401 for fuzing 30 mm

All developed for ARDEC



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Introduction

Electronic fuzing is moving to smaller cannon and even bullets.

- Design to program smaller munitions
- Need for fuze programming
- Proximity or Contact
 - Distance
 - for buried targets
 - hard targets
 - soft targets

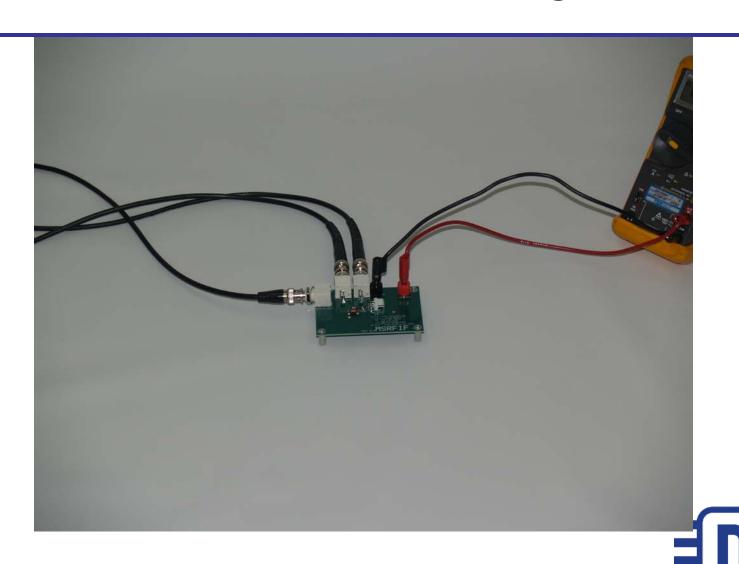


One Solution: RF Programming Benefits

- Smaller Antenna
- Programming Speed
- Smaller Electronics



One Solution: RF Programming



Comparison of RF to Magnetic

RF Options

- Smaller Antenna
 - Higher Frequency allows smaller antennas
- Distance programming: inches, not contact
- Programming speed
 - High carrier frequency for higher data rates
- Writer size
 - As with the receiver, transmitter is smaller



RF Options

- RF Options
 - Direct; stored for flight duration
 - Loaded to EE; for longer data storage



Technical Issues

- Getting the RF into the Bullet
- Programming Speed
- Antenna Size
 - Receiving enough RF energy in a short time
 - Forward acting antenna
- Unauthorized Programming
 - Can't program remotely; inches not feet
 - Encryption may be required for EEPROM
- Proving Safe and Arm not affected by RF



Possible RF path: Writer to Cartridge





Summary

Electronic fuzing is moving to smaller cannon and even bullets.

- Design to fit smaller munitions.
- RF approach provides smaller antennae, non-contact and faster programming.

